Regulation No. 1146: Electric Generating *Unit* (EGU) Multi-Pollutant Regulation

1.0 Preamble:

This regulation establishes Nitrogen Oxides (NO_x), Sulfur Dioxide (SO_2),and mercury *emissions* limits to achieve reductions of those pollutants from Delaware's large electric generation *units*. The reduction in NO_X, SO_2, and mercury *emissions* will: 1) reduce the impact of those *emissions* on public health; 2) aid in Delaware's attainment of the State and National Ambient Air Quality Standard (NAAQS) for ground level ozone and fine particulate matter; 3) help address local scale fine particulate and mercury problems attributable to *coal* and *residual oil*-fired electric generating *units*, 4) satisfy Delaware's obligations under the Clean Air Mercury Rule (CAMR), and 5) improve visibility and help satisfy Delaware's EGU-related regional haze obligations.

While the purpose of this regulation is to reduce air *emissions*, any emission control equipment installed to meet the requirements of this regulation may impact other media (e.g., water), and any overall environmental impacts must be considered by subject entities when they design their overall compliance strategy. Any emission controls installed to meet the requirements of this regulation will be subject to public review and comment through air Regulation 1102 and 1130 permitting requirements.

Separate from this Regulation the *Department* will propose regulations to address CO_2 *emissions* from these *units*, and regulations to satisfy direct fine particulate matter Reasonably Available Control Technology (RACT) and Best Available Retrofit Technology (BART) requirements. Together, these regulations will cover current and foreseeable requirements relative to the subject *units*.

2.0 Applicability: This regulation applies to coal-fired and *residual oil*-fired electric generating *units* located in Delaware with a *nameplate capacity* rating of 25 MW or greater that commenced operation on or before the effective date of this regulation.

3.0 Definitions: The following words and terms, when used in this regulation, shall have the following meanings:

"*Administrator*" means the *Administrator* of the United States Environmental Protection Agency or the *Administrator's* duly authorized representative.

"*Coal*" means any solid fuel classified as anthracite, bituminous, sub-bituminous, or lignite.

"Coal-fired" means combusting any amount of *coal* or coal-derived fuel, alone or in combination with any amount of other fuel, during any year.

"*Department*" means the State of Delaware Department of Natural Resources and Environmental Control as defined in Title 29, Delaware Code, Chapter 80, as amended.

"*Designated representative*" means the natural person who is authorized by the *owner*s and *operator*s of the source and all *units* at the source to legally bind each *owner* and *operator* in matters pertaining to this regulation. If the source subject to this regulation is also subject to the Federal Acid Rain Program, then this natural person shall be the same person as the *designated representative* under the Acid Rain Program.

"*Emissions*" means air pollutants exhausted from a *unit* or source into the atmosphere.

"*Generator*" means a device that produces electricity.

"*Heat input*" means the product (in MMBTU/time or TBTU/time) of the gross calorific value of the fuel (in MMBTU/lb or TBTU/lb) and the fuel feed rate (in lb of fuel/time) into a combustion device; or as calculated by any other method approved by the *Department* and the *Administrator*, and does not include the heat derived from pre-heated combustion air, recirculated flue gasses, or exhaust from other sources.

"*Inlet mercury*" means the average concentration of mercury in the flue gas at the inlet to any pollution control device(s).

"*Nameplate capacity*" means, starting from the initial installation of a *generator*, the maximum electrical generating output (in MWe) that the *generator* is capable of producing on a steady state basis and during continuous operation (when not restricted by seasonal or other de-ratings) as specified by the manufacturer of the *generator* or, starting from the completion of any physical change in the *generator* resulting in an increase in the maximum electrical generating output (in MWe) that the *generator* is capable of producing on a steady state basis and during continuous operation (when not restricted by seasonal or other de-ratings), such increased maximum amount as specified by the person conducting the physical change.

"*Operator*" means any person who operates, controls, or supervises a *unit* or source subject to this regulation and shall include, but not be limited to, any holding company, utility system, or plant manager of such *unit* or source.

"*Ounce*" means 28.4 grams.

"*Owner*" means: A) any holder of any portion of the legal or equitable title in a *unit*; B) any purchaser of power from a *unit* under a life-of-the-*unit*, firm power contractual arrangement; provided that, unless expressly provided for in a leasehold agreement, *owner* shall not include a passive lessor, or a person who has an equitable interest through such lessor, whose rental payments are not based (either directly or indirectly) on the revenues or income from the *unit*.

"*Residual oil*" means No. 5 or No. 6 fuel oil.

"*Ton*" means 2000 pounds.

"*Unit*" means, for the purposes of this regulation, a stationary, fossil-fuel-fired boiler supplying all or part of its output to an electric generating device.

4.0 NO_X *Emissions* Limitations

4.1 From May 1, 2009 through December 31, 2011, no *unit* subject to this regulation shall emit NO_x at a rate exceeding 0.15 lb/MMBTU.

4.1.1 Compliance with the requirements of paragraph 4.1 of this section shall be demonstrated on a rolling 24-hour average basis.

4.1.2 NO_x *emissions* from multiple *units* subject to this regulation at a common facility may be averaged on a *heat input* basis to demonstrate compliance with the requirements of paragraph 4.1 of this regulation.

4.2 On and after January 1, 2009, no *unit* subject to this regulation shall emit annual NO_x mass *emissions* that exceed the values shown in Table I.

4.2.1 From January 1, 2009 through December 31, 2011, compliance with the requirements of paragraph 4.2 of this regulation may be achieved by demonstrating that the total number of *tons* of NO_X emitted from a common facility does not exceed the sum of the *tonnage* limitations for all of the *units* subject to this regulation at that facility.

4.2.2 Compliance with the requirements of paragraph 4.2 of this regulation shall not be achieved by using, tendering, or otherwise acquiring NO_x allowances under any state or federal emission trading program.

4.2.3 For the purpose of determining compliance with the requirements of paragraph 4.2. of this regulation, the total *tons* for a specified period shall be calculated as the sum of all recorded hourly *emissions*, with any remaining fraction of a *ton* equal to or greater

than 0.50 *ton* deemed to equal one *ton* and any remaining fraction of a *ton* less than 0.50 *ton* deemed equal to zero *tons*.

4.3 On and after January 1, 2012, no *unit* subject to this regulation shall emit NO_x at a rate exceeding 0.125 lb/MMBTU, demonstrated on a rolling 24-hour average basis.

4.4 Compliance with the requirements of paragraphs 4.1 through 4.3 of this section shall be demonstrated with a continuous *emissions* monitoring system that is installed, calibrated, operated, and certified in accordance with 40 CFR Part 75 (May 18, 2005 amendment) or other method approved by the *Department* and the *Administrator*, and meeting the requirements of 40 CFR Part 96, subpart HH (April 28, 2006 amendment).

5.0 SO_2 *Emissions* Limitations

5.1 From May 1, 2009 though December 31, 2011, no *coal* fired *unit* subject to this regulation shall emit SO_2 at a rate exceeding 0.37 lb/MMBTU *heat input*.

5.1.1 Compliance with the requirements of paragraph 5.1 of this section shall be demonstrated on a 24-hour rolling average basis.

5.1.2 SO_2 *emissions* from multiple *units* subject to this regulation at a common facility may be averaged on a *heat input* basis to demonstrate compliance with the requirements of paragraph 5.1 of this regulation.

5.2 On and after January 1, 2012, no coal-fired *unit* subject to this regulation shall emit SO_2 at a rate exceeding 0.26 lb/MMBTU *heat input*, demonstrated on a rolling 24-hour average basis.

5.3 On and after January 1, 2009, no *unit* subject to this regulation shall emit annual SO_2 mass *emissions* that exceed the values shown in Table II.

5.3.1 From January 1, 2009 through December 31, 2011, compliance with the requirements of paragraph 5.3 of this regulation may be achieved by demonstrating that the total number of *tons* of SO_2 emitted from a common facility does not exceed the sum of the *tonnage* limitations for all of the *units* subject to this regulation at that facility.

5.3.2 Compliance with the requirements of paragraph 5.3 of this regulation shall not be achieved by using, tendering, or otherwise acquiring SO_2 allowances under any state or federal emission trading program.

5.3.3 For the purpose of determining compliance with the requirements of paragraph 5.3 of this regulation, the total *tons* for a specified period shall be calculated as the sum of all recorded hourly *emissions*, with any remaining fraction of a *ton* equal to or greater than 0.50 *ton* deemed to equal one *ton* and any remaining fraction of a *ton* less than 0.50 *ton* deemed equal to zero *tons*.

5.4 Compliance with the requirements of paragraphs 5.1 through 5.3 of this regulation shall be demonstrated with a continuous *emissions* monitoring system that is installed, calibrated, operated and certified in accordance with 40 CFR Part 75 (May 18, 2005 amendment) or other method approved by the *Department* and the *Administrator*, and meeting the monitoring and reporting requirements of 40 CFR Part 96, subpart HHH (April 28, 2006 amendment).

5.5 On and after January 1, 2009, no *residual oil* with a sulfur content in excess of 0.5%, by weight, shall be received for any *residual oil*-fired *unit* subject to this regulation.

5.5.1 Compliance with the requirements of paragraph 5.5 shall be demonstrated by fuel oil sampling and analysis Samples shall be collected:

5.5.1.1 From the transport vessel for each shipment of residual fuel oil received at the facility for combustion in the subject *residual oil*-fired *unit*, or

5.5.1.2 From the supply pipeline each day *residual oil* is delivered to the facility via pipeline for combustion in a *residual oil*-fired *unit* subject to this regulation, after sufficient fuel oil has been drained from the sampling line to remove any fuel oil that may have been standing in the sampling line, or .

5.5.1.3From the supply pipeline at the inlet to the *residual oil*-fired *unit* subject to this regulation each day the *unit* fires any quantity of oil fuel, after sufficient fuel oil has been drained from the sampling line to remove any fuel oil that may have been standing in the sampling line.

5.5.2 Fuel oil samples shall be analyzed in accordance with ASTM D 129-00, ASTM D 1552-03, ASTM D 2622-05, or ASTM D 4294-03.

6.0 Mercury *Emissions* Limitations

6.1 From January 1, 2009 through December 31, 2012, any coal-fired *unit* subject to this regulation shall, on a quarterly average basis:

6.1.1 Emit mercury at a rate that does not exceed 1.0 lb/TBTU *heat input*, or

6.1.2 Capture and control a minimum 80% of baseline *inlet mercury emissions*.

6.2 On or after January 1, 2013, any coal-fired *unit* subject to this regulation shall, on a quarterly average basis:

6.2.1 Emit mercury at a rate that does not exceed 0.6 lb/TBTU *heat input*, or

6.2.2 Capture and control a minimum 90% of baseline *inlet mercury emissions*.

6.3 Annual mercury mass *emissions* from the *coal-fired unit*s subject to this regulation shall not exceed the values shown in Table III.

6.3.1 Compliance with the requirements of paragraph 6.3 of this regulation shall be demonstrated on an annual basis.

6.3.2 Compliance with the requirements of paragraph 6.3 of this regulation shall not be achieved by using, tendering, or otherwise acquiring mercury allowances under any state or federal *emissions* trading program.

6.4 Compliance with the requirements of paragraphs 6.1 through 6.3 of this regulation shall be demonstrated as follows:

6.4.1 Compliance with the requirements of paragraphs 6.1.1., 6.2.1, and 6.3. shall be demonstrated with a continuous *emissions* monitoring system that is installed, calibrated, operated, and certified in accordance with 40 CFR Part 75 (May 18, 2005 amendment) and meeting the monitoring and reporting requirements of 40 CFR Part 60 (June 9, 2006 amendment).

6.4.2 Compliance with the requirements of paragraphs 6.1.2. and 6.2.2. shall be demonstrated as follows:

6.4.2.1 During the period January 1, 2007 through March 31, 2008, the *owner* or *operator* shall conduct at least four quarterly stack tests to measure the mercury in the flue gas stream.

6.4.2.1.1 Except as provided for in 6.4.2.1.2. the test sampling location shall be located upstream of any pollution control device.

6.4.2.1.2 The sampling location may be located downstream of any SNCR injection points.

6.4.2.2 There shall be at least three valid stack tests per quarter and at least 45 days between stack tests performed for a given quarter and the stack tests performed for the preceding quarter, unless otherwise approved by the *Department*.

6.4.2.3 Each stack test shall be conducted in accordance with a testing protocol approved by the *Department*. Proposed test protocols shall be submitted to the *Department* no less than 90 days prior to conducting the mercury tests.

6.4.2.4 The baseline *inlet mercury* emission rate for the affected *unit*, in lb/TBTU, shall be determined as the arithmetic average of the quarterly stack tests conducted on that *unit* in accordance with section 6.4.2.1 of this regulation.

6.4.2.5 No later than June 1, 2008, the *owner* or *operator* shall submit a petition to the *Department* requesting the establishment of a *unit* specific mercury emission rate limit. As a minimum, the report shall contain the following information:

6.4.2.5.1 Identification and brief description of the affected *unit*.

6.4.2.5.2 A list and brief description of all *emissions* control equipment installed on the affected *unit* at the time of the stack tests, including operating status at the time of the stack tests.

6.4.2.5.3 An accounting of all fuels and fuel quality being fired during the *emissions* tests.

6.4.2.5.4 Results of each quarterly mercury *emissions* tests.

6.4.2.5.5 Proposed mercury emission limits that are no greater than 20% of the baseline uncontrolled mercury emission rate determined in accordance with section 6.4.2. of this regulation for the annual periods January 1, 2009 through December 31, 2012, and no

greater than 10% of the baseline uncontrolled mercury emission rate determined in accordance with section 6.4.2 of this regulation for the annual periods starting January.1, 2013 and beyond.

6.4.2.5.6 Summary description of the actions anticipated by the *owner* or *operator* of the affected *unit* to attain compliance with the proposed mercury emission limits.

6.4.2.6 The *owner* or *operator* of the affected *unit* shall submit to the *Department* any additional information requested by the *Department* necessary for review and approval of the petition.

6.4.2.7 The *Department* shall establish, for the affected *unit*, a *unit* specific mercury emission rate no greater than 20% of the *unit's* baseline uncontrolled mercury *emissions* rate for the period January 1, 2009 through December 31, 2012, and no greater than 10% of the *unit's* baseline uncontrolled mercury emission rate for the period January 2013 and beyond.

7.0 Recordkeeping and Reporting

7.1 The *owner* or *operator* of a *unit* subject to this regulation shall comply with all applicable recordkeeping and reporting requirements of 40 CFR Part 75 (May 18, 2005) and this regulation.

7.2 The *owner* or *operator* of a *unit* subject to this regulation shall maintain, for a period of at least five years, copies of all measurements, tests, reports, and other information required by 40 CFR Part 75 (May 18, 2005 amendment) and this regulation. This information shall be provided to the *Department* upon request at any time.

7.3 After January 1, 2009, the *owner* or *operator* of a *unit* subject to this regulation shall submit to the *Department* semi-annual reports in conjunction with the Regulation No. 30 reporting requirements. The semi-annual reports shall contain, as a minimum, the following information:

7.3.1 Tabulation of emission monitoring results reduced to 1-hour averages, on a clock basis, for the period in units consistent with the applicable emission standard.

7.3.2 In addition to the requirements of Section 8.3.1, the following calculations shall be made and reported in the semi-annual report:

7.3.2.1 For mass emission standards based on daily limits, the daily mass emission on a calendar day basis for each day in the period, in units consistent with the applicable emission standard.

7.3.2.2 For mass *emissions* based on an annual limit, the calendar year-to-date summation of mass *emissions* through the period being reported, in units consistent with the applicable emission standard.

7.3.2.4 For emission rate averaging, identification of the *units* being averaged, hourly *heat input* of the respective *units*, hourly emission rate of the respective *units*, and the hourly combined *heat input* weighted emission average for the affected *units*.

7.3.3 Identification of any period(s) of, and cause for, any invalid data averages.

7.3.4 Records of any repairs, adjustment, or maintenance to the monitoring system.

7.3.5 The results of all fuel oil sulfur analysis.

7.3.6 Identification of any exceedance of any emission standard provided by this regulation, cause of the exceedance, and corrective action taken in response to the exceedance.

7.3.7 Results from all tests, audits, and recalibrations performed during the period.

7.3.8 Any other relevant data requested by the *Department*.

7.3.9 A statement, "I am authorized to make this submission on behalf of the *owner*s and *operator*s of the affected facility or affected *units* for which this submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge true, accurate and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment."

7.3.10 Signature by the *designated representative*.

8.0 Compliance Plan

8.1 The *owner* or *operator* of a *unit* subject to this regulation shall submit a compliance plan to the *Department* on or before July 1, 2007.

8.2 The compliance plan shall contain, at a minimum, the following information:

8.2.1 Identification of the subject *unit*.

8.2.2 A description of any existing NO_X, SO_2, and/or mercury *emissions* control technologies installed on the *unit*, including identification of the initial installation date of the control technologies.

8.2.3 Identification of the requirements of this regulation applicable to the *unit*.

8.2.4 A description of the plan or methodology that will be utilized to demonstrate compliance with this regulation.

8.2.5 Identification of emission control technologies, and/or modifications to existing emission control technologies, that will be utilized to comply with the applicable *emissions* limitations of this regulation. This shall include:

8.2.5.1 A description of the control technology and its applicability to the subject *unit*.

8.2.5.2 The design control effectiveness or design emission rate following installation of the emission control technology on the subject *unit*.

8.2.5.3 Estimated dates for start of construction, start-up of the *emissions* control technology, and estimated project completion date.

8.2.6 A description of the *emissions* monitoring methodology to be utilized for demonstrating compliance with the *emissions* limitations of this regulation, including estimated installation dates, start-up dates, and testing dates.

8.2.7 Identification of any planned changes to administrative or operating procedures or practices intended to achieve compliance with applicable *emissions* limitations of this regulation.

8.2.8 Any other relevant information requested by the *Department*.

8.2.9 A statement, "I am authorized to make this submission on behalf of the *owner*s and *operator*s of the affected facility or affected *units* for which this submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge true, accurate and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment."

8.2.10 Signature by the *designated representative*.

8.3 A facility that has submitted a complete compliance plan for its impacted units in accordance with the requirements of Section 8.0 of this regulation may on one occasion for each unit request an extension of up to one year for any deadline set out in Sections 5.1 and 5.3 of this regulation. The facility shall have the burden of demonstrating that good faith efforts have been made to comply with the original deadline; that the facility is unable to comply because of events or circumstances beyond the control of the facility, including any entity controlled by it; that the delay could not have been prevented by the facility's exercise of due diligence; and that the facility has taken all reasonable steps or measures to avoid or minimize the delay. The Secretary shall exercise his discretion to grant a request that satisfies all the criteria.

9.0 Penalties. The *Department* may enforce all of the provisions of this regulation under 7 Del C. Chapter 60.

Table I
Annual NO_X Mass *Emissions* Limits

Unit	**Control Period NO_X Mass *Emissions* Limit (*tons*)**
Edge Moor 3	773
Edge Moor 4	1339
Edge Moor 5	1348
Indian River 1	601
Indian River 2	628
Indian River 3	977
Indian River 4	2032
McKee Run 3	244

Table II
Annual SO_2 Mass *Emissions* Limits

Unit	**Control Period SO_2 Mass *Emissions* Limit (*tons*)**
Edge Moor 3	1391
Edge Moor 4	2410
Edge Moor 5	2427
Indian River 1	1082
Indian River 2	1130
Indian River 3	1759
Indian River 4	3657
McKee Run 3	439

Table III
Annual Mercury Mass *Emissions* Limits

Unit	Mercury Mass *Emissions* 2009 – 2012 (ounces)	Mercury Mass *Emissions* 2013 and Beyond (ounces)
Edge Moor Unit 3	266	106
Edge Moor Unit 4	462	183
Indian River Unit 1	207	82
Indian River Unit 2	216	86
Indian River Unit 3	337	134
Indian River Unit 4	700	278